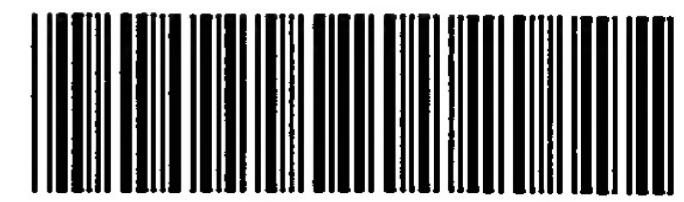


RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 09/845, 157 B
Source: JFWO
Date Processed by STIC: 08/01/2005

ENTERED



IWF16

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005

TIME: 16:16:15

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
 Output Set: N:\CRF4\08012005\I845157B.raw

5 <110> APPLICANT: Smith, Michael D.
 6 Potter, Robert J.
 7 Dhariwal, Gulshan
 8 Gerard, Gary F.
 9 Rosenthal, Kim
 11 <120> TITLE OF INVENTION: Thermostable Reverse Transcriptases and Uses Thereof
 13 <130> FILE REFERENCE: 0942.5040001/RWE/AWL
 15 <140> CURRENT APPLICATION NUMBER: US 09/845,157B
 16 <141> CURRENT FILING DATE: 2001-05-01
 18 <150> PRIOR APPLICATION NUMBER: US 60/207,196
 19 <151> PRIOR FILING DATE: 2000-05-26
 22 <160> NUMBER OF SEQ ID NOS: 8
 24 <170> SOFTWARE: PatentIn version 3.0
 27 <210> SEQ ID NO: 1
 28 <211> LENGTH: 2151
 29 <212> TYPE: DNA
 30 <213> ORGANISM: Moloney-Murine Leukemia Virus
 33 <220> FEATURE:
 34 <221> NAME/KEY: CDS
 35 <222> LOCATION: (1)..(2151)
 38 <400> SEQUENCE: 1
 39 atg ggg ggt tct cat cat cat cat cat ggt atg gct agc atg act 48
 40 Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr
 41 1 5 10 15
 43 ggt gga cag caa atg ggt cgg gat ctg tac gac gat gac gat aag cat 96
 44 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Lys His
 45 20 25 30
 47 atg acc cta aat ata gaa gat gag tat cgg cta cat gag acc tca aaa 144
 48 Met Thr Leu Asn Ile Glu Asp Glu Tyr Arg Leu His Glu Thr Ser Lys
 49 35 40 45
 51 gag cca gat gtt tct cta ggg tcc aca tgg ctg tct gat ttt cct cag 192
 52 Glu Pro Asp Val Ser Leu Gly Ser Thr Trp Leu Ser Asp Phe Pro Gln
 53 50 55 60
 55 gcc tgg gcg gaa acc ggg ggc atg gga ctg gca gtt cgc caa gct cct 240
 56 Ala Trp Ala Glu Thr Gly Gly Met Gly Leu Ala Val Arg Gln Ala Pro
 57 65 70 75 80
 59 ctg atc ata ctt ctg aaa gca acc tct acc ccc gtg tcc ata aaa caa 288
 60 Leu Ile Ile Leu Leu Lys Ala Thr Ser Thr Pro Val Ser Ile Lys Gln
 61 85 90 95
 63 tac ccc atg tca caa gaa gcc aga ctg ggg atc aag ccc cac ata cag 336
 64 Tyr Pro Met Ser Gln Glu Ala Arg Leu Gly Ile Lys Pro His Ile Gln
 65 100 105 110
 67 aga ctg ttg gac cag gga ata ctg gta ccc tgc cag tcc ccc tgg aac 384

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005

TIME: 16:16:15

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
 Output Set: N:\CRF4\08012005\I845157B.raw

68	Arg	Leu	Leu	Asp	Gln	Gly	Ile	Leu	Val	Pro	Cys	Gln	Ser	Pro	Trp	Asn
69		115					120							125		
71	acg	ccc	ctg	cta	ccc	gtc	aag	aaa	ccc	ggg	act	aat	gat	tac	agg	cct
72	Thr	Pro	Leu	Leu	Pro	Val	Lys	Lys	Pro	Gly	Thr	Asn	Asp	Tyr	Arg	Pro
73		130					135							140		
75	gtc	caa	gat	ctg	aga	gag	gtc	aac	aaa	cgc	gta	gaa	gac	atc	cac	ccc
76	Val	Gln	Asp	Leu	Arg	Glu	Val	Asn	Lys	Arg	Val	Glu	Asp	Ile	His	Pro
77	145						150				155			160		
79	acc	gta	ccc	aac	ccc	tac	aac	ctc	ttg	agt	ggg	ctc	cca	ccg	tcc	cac
80	Thr	Val	Pro	Asn	Pro	Tyr	Asn	Leu	Leu	Ser	Gly	Leu	Pro	Pro	Ser	His
81							165			170			175			
83	cag	tgg	tac	act	gtt	cta	gac	tta	aaa	gat	gcc	ttt	ttc	tgc	ctg	aga
84	Gln	Trp	Tyr	Thr	Val	Leu	Asp	Leu	Lys	Asp	Ala	Phe	Phe	Cys	Leu	Arg
85		180					185				190					
87	ctc	cac	ccg	acg	tct	cag	cct	ctc	ttc	gcc	ttt	gaa	tgg	aga	gac	cca
88	Leu	His	Pro	Thr	Ser	Gln	Pro	Leu	Phe	Ala	Phe	Glu	Trp	Arg	Asp	Pro
89		195					200			205						
91	gag	atg	gga	atc	tct	ggc	caa	cta	acc	tgg	acc	aga	ctc	cca	cag	gga
92	Glu	Met	Gly	Ile	Ser	Gly	Gln	Leu	Thr	Trp	Thr	Arg	Leu	Pro	Gln	Gly
93		210					215			220						
95	ttc	aaa	aac	agt	ccc	acc	ctg	ttt	gat	gag	gca	ctg	cgc	aga	gac	cta
96	Phe	Lys	Asn	Ser	Pro	Thr	Leu	Phe	Asp	Glu	Ala	Leu	Arg	Arg	Asp	Leu
97	225						230			235			240			
99	gca	gac	ttc	cg	atc	cag	cac	cca	gac	ttg	atc	ctg	cta	cag	tac	gta
100	Ala	Asp	Phe	Arg	Ile	Gln	His	Pro	Asp	Leu	Ile	Leu	Leu	Gln	Tyr	Val
101		245					250			255						
103	gat	gac	tta	ctg	ctg	gcc	act	tct	gag	ctc	gac	tgc	caa	caa	ggt	
104	Asp	Asp	Leu	Leu	Leu	Ala	Ala	Thr	Ser	Glu	Leu	Asp	Cys	Gln	Gln	Gly
105		260					265			270						
107	act	cg	gcc	ctg	tta	caa	acc	cta	gga	gac	ctc	gg	tat	cg	gcc	tcg
108	Thr	Arg	Ala	Leu	Leu	Gln	Thr	Leu	Gly	Asp	Leu	Gly	Tyr	Arg	Ala	Ser
109		275					280			285						
111	gcc	aag	aaa	gcc	caa	att	tgc	cag	aaa	cag	gtc	aag	tat	ctg	gg	tat
112	Ala	Lys	Lys	Ala	Gln	Ile	Cys	Gln	Lys	Gln	Val	Lys	Tyr	Leu	Gly	Tyr
113		290					295			300						
115	ctt	cta	aaa	gag	ggt	cag	aga	tgg	ctg	act	gag	gcc	aga	aaa	gag	act
116	Leu	Leu	Lys	Glu	Gly	Gln	Arg	Trp	Leu	Thr	Glu	Ala	Arg	Lys	Glu	Thr
117	305						310			315			320			
119	gtg	atg	ggg	cag	cct	act	ccg	aag	acc	ccg	cg	caa	cta	agg	gag	ttc
120	Val	Met	Gly	Gln	Pro	Thr	Pro	Lys	Thr	Pro	Arg	Gln	Leu	Arg	Glu	Phe
121		325					330			335						
123	cta	ggg	acg	gca	ggc	ttc	tgt	cg	ctc	tgg	atc	cct	ggg	ttt	gca	gaa
124	Leu	Gly	Thr	Ala	Gly	Phe	Cys	Arg	Leu	Trp	Ile	Pro	Gly	Phe	Ala	Glu
125		340					345			350						
127	atg	gca	gcc	ccc	ttg	tac	cct	ctc	acc	aaa	acg	ggg	act	ctg	ttt	aat
128	Met	Ala	Ala	Pro	Leu	Tyr	Pro	Leu	Thr	Lys	Thr	Gly	Thr	Leu	Phe	Asn
129		355					360			365						
131	tgg	ggc	cca	gac	caa	caa	aag	gcc	tat	caa	gaa	atc	aag	caa	gct	ttt
132	Trp	Gly	Pro	Asp	Gln	Gln	Lys	Ala	Tyr	Gln	Glu	Ile	Lys	Gln	Ala	Leu

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005
TIME: 16:16:15

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
Output Set: N:\CRF4\08012005\I845157B.raw

133	370	375	380	
135	ct a act gcc cca gcc ctg ggg ttg cca gat ttg act aag ccc ttt gaa			1200
136	Leu Thr Ala Pro Ala Leu Gly Leu Pro Asp Leu Thr Lys Pro Phe Glu			
137	385	390	395	400
139	ctc ttt gtc gac gag aag cag ggc tac gcc aaa ggt gtc cta acg caa			1248
140	Leu Phe Val Asp Glu Lys Gln Gly Tyr Ala Lys Gly Val Leu Thr Gln			
141	405	410	415	
143	aaa ctg gga cct tgg cgt cgg ccg gtg gcc tac ctg tcc aaa aag cta			1296
144	Lys Leu Gly Pro Trp Arg Arg Pro Val Ala Tyr Leu Ser Lys Lys Leu			
145	420	425	430	
147	gac cca gta gca gct ggg tgg ccc cct tgc cta cgg atg gta gca gcc			1344
148	Asp Pro Val Ala Ala Gly Trp Pro Pro Cys Leu Arg Met Val Ala Ala			
149	435	440	445	
151	att gcc gta ctg aca aag gat gca ggc aag cta acc atg gga cag cca			1392
152	Ile Ala Val Leu Thr Lys Asp Ala Gly Lys Leu Thr Met Gly Gln Pro			
153	450	455	460	
155	cta gtc att ctg gcc ccc cat gca gta gag gca cta gtc aaa caa ccc			1440
156	Leu Val Ile Leu Ala Pro His Ala Val Glu Ala Leu Val Lys Gln Pro			
157	465	470	475	480
159	ccc gat cga tgg ctt tcc aac gcc cgg atg act cac tat cag gcc ttg			1488
160	Pro Asp Arg Trp Leu Ser Asn Ala Arg Met Thr His Tyr Gln Ala Leu			
161	485	490	495	
163	ctt ttg gac acg gac cgg gtc cag ttc gga ccg gtg gta gcc ctg aac			1536
164	Leu Leu Asp Thr Asp Arg Val Gln Phe Gly Pro Val Val Ala Leu Asn			
165	500	505	510	
167	ccg gct aca ctg ctc cca ctg cct gag gaa ggg ctg cag cac aac tgc			1584
168	Pro Ala Thr Leu Leu Pro Leu Pro Glu Glu Gly Leu Gln His Asn Cys			
169	515	520	525	
171	ctt gat atc ctg gcc gaa gcc cac gga acc cga ccc gac cta acg gac			1632
172	Leu Asp Ile Leu Ala Glu Ala His Gly Thr Arg Pro Asp Leu Thr Asp			
173	530	535	540	
175	cag ccg ctc cca gac gcc gac cac acc tgg tac acg ggt gga tcc agt			1680
176	Gln Pro Leu Pro Asp Ala Asp His Thr Trp Tyr Thr Gly Gly Ser Ser			
177	545	550	555	560
179	ctc ttg caa gag gga cag cgt aag gcg gga gct gcg gtg acc acc gag			1728
180	Leu Leu Gln Glu Gly Gln Arg Lys Ala Gly Ala Ala Val Thr Glu			
181	565	570	575	
183	acc gag gta atc tgg gct aaa gcc ctg cca gcc ggg aca tcc gct cag			1776
184	Thr Glu Val Ile Trp Ala Lys Ala Leu Pro Ala Gly Thr Ser Ala Gln			
185	580	585	590	
187	cg gct cag ctg ata gca ctc acc cag gcc cta agg atg gca gaa ggt			1824
188	Arg Ala Gln Leu Ile Ala Leu Thr Gln Ala Leu Arg Met Ala Glu Gly			
189	595	600	605	
191	aag aag cta aat gtt tat acg aat tcc cgt tat gct ttt gct act gcc			1872
192	Lys Lys Leu Asn Val Tyr Thr Asn Ser Arg Tyr Ala Phe Ala Thr Ala			
193	610	615	620	
195	cat atc cat gga gaa ata tac aga agg cgt ggg ttg ctc aca tca gaa			1920
196	His Ile His Gly Glu Ile Tyr Arg Arg Gly Leu Leu Thr Ser Glu			
197	625	630	635	640

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005

TIME: 16:16:15

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
 Output Set: N:\CRF4\08012005\I845157B.raw

199 ggc aaa gag atc aaa aat aag gac gag ata ttg gcc cta cta aaa gcc 1968
 200 Gly Lys Glu Ile Lys Asn Lys Asp Glu Ile Leu Ala Leu Leu Lys Ala
 201 645 650 655
 203 ctc ttt ctg ccc aaa aga ctt agc ata atc cat tgt cca gga cat caa 2016
 204 Leu Phe Leu Pro Lys Arg Leu Ser Ile Ile His Cys Pro Gly His Gln
 205 660 665 670
 207 aag gga cac agc gcc gag gct aga ggc aac cg^g atg gct gac caa gc^g 2064
 208 Lys Gly His Ser Ala Glu Ala Arg Gly Asn Arg Met Ala Asp Gln Ala
 209 675 680 685
 211 gcc cga aag gca gcc atc aca gag aat cca gac acc tct acc ctc ctc 2112
 212 Ala Arg Lys Ala Ala Ile Thr Glu Asn Pro Asp Thr Ser Thr Leu Leu
 213 690 695 700
 215 ata gaa aat tca tca ccc aat tcc cgc tta att aat taa 2151
 216 Ile Glu Asn Ser Ser Pro Asn Ser Arg Leu Ile Asn
 217 705 710 715
 220 <210> SEQ ID NO: 2
 221 <211> LENGTH: 716
 222 <212> TYPE: PRT
 223 <213> ORGANISM: Moloney-Murine Leukemia Virus
 228 <400> SEQUENCE: 2
 229 Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
 230 1 5 10 15
 232 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys His
 233 20 25 30
 235 Met Thr Leu Asn Ile Glu Asp Glu Tyr Arg Leu His Glu Thr Ser Lys
 236 35 40 45
 238 Glu Pro Asp Val Ser Leu Gly Ser Thr Trp Leu Ser Asp Phe Pro Gln
 239 50 55 60
 241 Ala Trp Ala Glu Thr Gly Gly Met Gly Leu Ala Val Arg Gln Ala Pro
 242 65 70 75 80
 244 Leu Ile Ile Leu Leu Lys Ala Thr Ser Thr Pro Val Ser Ile Lys Gln
 245 85 90 95
 247 Tyr Pro Met Ser Gln Glu Ala Arg Leu Gly Ile Lys Pro His Ile Gln
 248 100 105 110
 250 Arg Leu Leu Asp Gln Gly Ile Leu Val Pro Cys Gln Ser Pro Trp Asn
 251 115 120 125
 253 Thr Pro Leu Leu Pro Val Lys Lys Pro Gly Thr Asn Asp Tyr Arg Pro
 254 130 135 140
 256 Val Gln Asp Leu Arg Glu Val Asn Lys Arg Val Glu Asp Ile His Pro
 257 145 150 155 160
 259 Thr Val Pro Asn Pro Tyr Asn Leu Leu Ser Gly Leu Pro Pro Ser His
 260 165 170 175
 262 Gln Trp Tyr Thr Val Leu Asp Leu Lys Asp Ala Phe Phe Cys Leu Arg
 263 180 185 190
 265 Leu His Pro Thr Ser Gln Pro Leu Phe Ala Phe Glu Trp Arg Asp Pro
 266 195 200 205
 268 Glu Met Gly Ile Ser Gly Gln Leu Thr Trp Thr Arg Leu Pro Gln Gly
 269 210 215 220
 271 Phe Lys Asn Ser Pro Thr Leu Phe Asp Glu Ala Leu Arg Arg Asp Leu

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005

TIME: 16:16:15

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
 Output Set: N:\CRF4\08012005\I845157B.raw

272	225	230	235	240
274	Ala Asp Phe Arg Ile Gln His Pro Asp Leu Ile Leu Leu Gln Tyr Val			
275	245	250	255	
277	Asp Asp Leu Leu Leu Ala Ala Thr Ser Glu Leu Asp Cys Gln Gln Gly			
278	260	265	270	
280	Thr Arg Ala Leu Leu Gln Thr Leu Gly Asp Leu Gly Tyr Arg Ala Ser			
281	275	280	285	
283	Ala Lys Lys Ala Gln Ile Cys Gln Lys Gln Val Lys Tyr Leu Gly Tyr			
284	290	295	300	
285	Leu Leu Lys Glu Gly Gln Arg Trp Leu Thr Glu Ala Arg Lys Glu Thr			
286	305	310	315	320
288	Val Met Gly Gln Pro Thr Pro Lys Thr Pro Arg Gln Leu Arg Glu Phe			
289	325	330	335	
291	Leu Gly Thr Ala Gly Phe Cys Arg Leu Trp Ile Pro Gly Phe Ala Glu			
292	340	345	350	
294	Met Ala Ala Pro Leu Tyr Pro Leu Thr Lys Thr Gly Thr Leu Phe Asn			
295	355	360	365	
297	Trp Gly Pro Asp Gln Gln Lys Ala Tyr Gln Glu Ile Lys Gln Ala Leu			
298	370	375	380	
300	Leu Thr Ala Pro Ala Leu Gly Leu Pro Asp Leu Thr Lys Pro Phe Glu			
301	385	390	395	400
303	Leu Phe Val Asp Glu Lys Gln Gly Tyr Ala Lys Gly Val Leu Thr Gln			
304	405	410	415	
306	Lys Leu Gly Pro Trp Arg Arg Pro Val Ala Tyr Leu Ser Lys Lys Leu			
307	420	425	430	
309	Asp Pro Val Ala Ala Gly Trp Pro Pro Cys Leu Arg Met Val Ala Ala			
310	435	440	445	
312	Ile Ala Val Leu Thr Lys Asp Ala Gly Lys Leu Thr Met Gly Gln Pro			
313	450	455	460	
315	Leu Val Ile Leu Ala Pro His Ala Val Glu Ala Leu Val Lys Gln Pro			
316	465	470	475	480
318	Pro Asp Arg Trp Leu Ser Asn Ala Arg Met Thr His Tyr Gln Ala Leu			
319	485	490	495	
321	Leu Leu Asp Thr Asp Arg Val Gln Phe Gly Pro Val Val Ala Leu Asn			
322	500	505	510	
324	Pro Ala Thr Leu Leu Pro Leu Pro Glu Glu Gly Leu Gln His Asn Cys			
325	515	520	525	
327	Leu Asp Ile Leu Ala Glu Ala His Gly Thr Arg Pro Asp Leu Thr Asp			
328	530	535	540	
330	Gln Pro Leu Pro Asp Ala Asp His Thr Trp Tyr Thr Gly Gly Ser Ser			
331	545	550	555	560
333	Leu Leu Gln Glu Gly Gln Arg Lys Ala Gly Ala Ala Val Thr Thr Glu			
334	565	570	575	
336	Thr Glu Val Ile Trp Ala Lys Ala Leu Pro Ala Gly Thr Ser Ala Gln			
337	580	585	590	
339	Arg Ala Gln Leu Ile Ala Leu Thr Gln Ala Leu Arg Met Ala Glu Gly			
340	595	600	605	
343	Lys Lys Leu Asn Val Tyr Thr Asn Ser Arg Tyr Ala Phe Ala Thr Ala			
344	610	615	620	

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005
TIME: 16:16:16

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
Output Set: N:\CRF4\08012005\I845157B.raw

Invalid <213> Response:

Use of "Artificial" only as "<213> Organism" response is incomplete,
per 1.823(b) of New Sequence Rules. Valid response is Artificial Sequence.

Seq#:3,4,5

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/845,157B

DATE: 08/01/2005

TIME: 16:16:16

Input Set : A:\Sequence Listing ASCII, Docket No. 0942.5040001.ST25.txt
Output Set: N:\CRF4\08012005\I845157B.raw